

Appln. No. 10/007,468
Amendment dated April 26, 2005
Reply to Office Action of January 26, 2005

Amendments to the Claims:

Please amend claims 1 and 12 as follows. The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended). A liquid crystal display device comprising:

a liquid crystal display panel having a plurality of signal lines, a plurality of scanning lines, and a plurality of display pixels arrayed in a matrix and provided respectively near cross-points between the signal lines and the scanning lines through switching elements; and

a driver which supplies the plurality of signal lines with a display signal in a field period, and which supplies the plurality of scanning lines with a scanning signal, to apply the display signal to the plurality of display pixels, wherein

the driver includes means which supplies ~~a predetermined~~ an initialization signal including a single pulse voltage to the signal line and supplies a first gate pulse as the scanning signal to the scanning line, thereby applying the initialization signal to the display pixel, and thereafter supplies the display

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signal to the signal lines and supplies a second gate pulse as
the scanning signal to the scanning line, thereby applying the
display signal to the display pixel, at least one signal
20 application period set within the field period.

Claim 2 (Previously Presented). The liquid crystal display
device according to claim 1, wherein

the liquid crystal display panel includes a plurality of
pixel electrodes arrayed in a matrix through the switching
5 elements, and common electrodes opposed to the pixel electrodes,
and

the display pixels comprise the pixel electrodes, the common
electrodes, and liquid crystal sandwiched between the pixel
electrodes and the common electrodes.

Claim 3 (Previously Presented). The liquid crystal display
device according to claim 1, wherein each of the switching
elements of the liquid crystal display panel includes a thin film
transistor.

Claim 4 (Previously Presented). The liquid crystal display
device according to claim 1, wherein

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the driver applies the initialization signal voltage to the display pixels and thereafter applies the display signal after a
5 predetermined hold time, in the signal application period in the field period, and

the hold time is set to a time equal to or longer than a voltage-write response time of the display pixels.

Claim 5 (Previously Presented). The liquid crystal display device according to claim 1, wherein

the initialization signal voltage in the driver has a value equal to or higher than a maximum voltage value of the display
5 signal.

Claim 6 (Previously Presented). The liquid crystal display device according to claim 1, wherein

the driver applies the initialization signal voltage and the display signal to the display pixels connected to the scanning
5 lines of the liquid crystal display panel, at a predetermined time interval, sequentially for every one of the scanning lines, in the signal application period in the field period, and

the time interval is set to a value at which timings of applying the initialization signal voltage and the display signal

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- 10 to every one of the display pixels connected to each of the
scanning lines do not overlap with each other.

Claim 7 (Previously Presented). The liquid crystal display
device according to claim 1, wherein

- application timing is set such that the driver applies the
initialization signal voltage simultaneously to all of the
5 display pixels of the liquid crystal display panel, and
thereafter applies the display signal to the display pixels
connected to the scanning lines of the liquid crystal display
panel, at a predetermined time interval, sequentially for every
one of the scanning lines, in the signal application period in
10 the field period.

Claim 8 (Previously Presented). The liquid crystal display
device according to claim 1, wherein

the driver provides three signal application periods in one
field period.

Claim 9 (Previously Presented). The liquid crystal display
device according to claim 8, wherein

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the display signal comprises first, second, and third color component signals, and

5 the driver applies the initialization signal voltage and thereafter applies any one of the first, second, and third color component signals, to the display pixels connected to the scanning lines of the liquid crystal display panel, sequentially for every one of the scanning lines, in each of the signal
10 application periods of the field period.

Claim 10 (Previously Presented). The liquid crystal display device according to claim 9, further comprising an illumination light source capable of controlling light emission color,

the illumination light source being controlled to have light
5 emission color corresponding to any one of the first, second, and third color component signals that is applied by the driver in each signal application period.

Claim 11 (Previously Presented). The liquid crystal display device according to claim 8, wherein of the display signal, the first color component signal is a red component signal, the second color component signal is a green component signal, and
5 the third color component signal is a blue component signal.

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Claim 12 (Currently Amended). A drive control method for a liquid crystal display device which has a plurality of signal lines, a plurality of scanning lines, and a plurality of display pixels arrayed in a matrix and provided respectively near cross-points between the signal lines and the scanning lines through switching elements, and which supplies the plurality of signal lines with a display signal in a field period and supplies scanning signals to the plurality of scanning lines, to apply the display signal to the plurality of display pixels, comprising:

providing at least one signal application period in the field period;

applying an initialization signal including a single pulse to the display pixel, by supplying the initialization signal voltage to the signal line and supplying a first gate pulse as the scanning signal to the scanning line; and

applying the display signal to the display pixels by supplying the display signal to the signal line and supplying a second gate pulse as the scanning signal to the scanning line after completion of the applying of the initialization signal voltage in the signal application period.

Claim 13 (Previously Presented). The drive control method according to claim 12, further comprising providing a

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predetermined voltage hold time after completion of applying the initialization signal voltage to the display pixels,

5 wherein

applying of the display signal includes
applying the display signal to the display pixels after
the voltage hold time has passed after applying the
initialization signal voltage, and

10 the hold time is set to a time equal to or greater than a
voltage-write response time of the display
pixels.

Claim 14 (Previously Presented). The drive control method
according to claim 12, wherein

the initialization signal voltage has a value
equal to or higher than a maximum voltage value of the
5 display signal.

Claim 15 (Previously Presented). The drive control method
according to claim 12, wherein applying the initialization signal
voltage includes applying the initialization signal voltage to
the display pixels connected to the scanning lines, sequentially
5 for every one of the scanning lines,

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applying the display signal includes applying the display signal to the display pixels connected to the scanning lines, sequentially for every one of the scanning lines, and

10 application timings of applying the initialization signal voltage and the display signal for every one of the scanning line are set so as not to overlap with each other.

Claim 16 (Previously Presented). The drive control method according to claim 12, wherein

applying the initialization signal voltage includes applying the initialization signal voltage simultaneously to all display
5 pixels connected to the scanning lines.

Claim 17 (Previously Presented). The drive control method according to claim 12, wherein

providing the signal application period in the field period includes providing three signal application periods in one field
5 period.

Claim 18 (Previously Presented). The drive control method according to claim 17, wherein

the display signal comprises first, second, and third color component signals, and

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- 5 applying the initialization signal voltage includes applying
the initialization signal voltage simultaneously to the plurality
of display pixels connected to the scanning lines, in each of the
signal application periods, and
- 10 applying the display signal includes applying any of the
first, second, and third color component signals, to the display
pixels connected to the scanning lines, sequentially for every
one of the scanning lines, in each of the signal application
periods.

Claim 19 (Previously Presented). The drive control method
according to claim 18, further comprising controlling light
emission color of an illumination light source, wherein

- 5 controlling of light emission color includes controlling the
light emission color of the light source so as to correspond to
any of the first, second, and third color component signals that
is applied to the display pixels in applying the display signal.